Appendix Test Data

Report No.:	18220WC30246701	Test Sample No.:	1-2-2
Start Test Date:	2023.11.23	Finish Test Date:	2023.11.27
Test Engineer:	Hayman Chen	Auditor:	Rock Luo
Temperature:	26.1℃	Relative Humidity:	47%
Pressure:	101kPa		

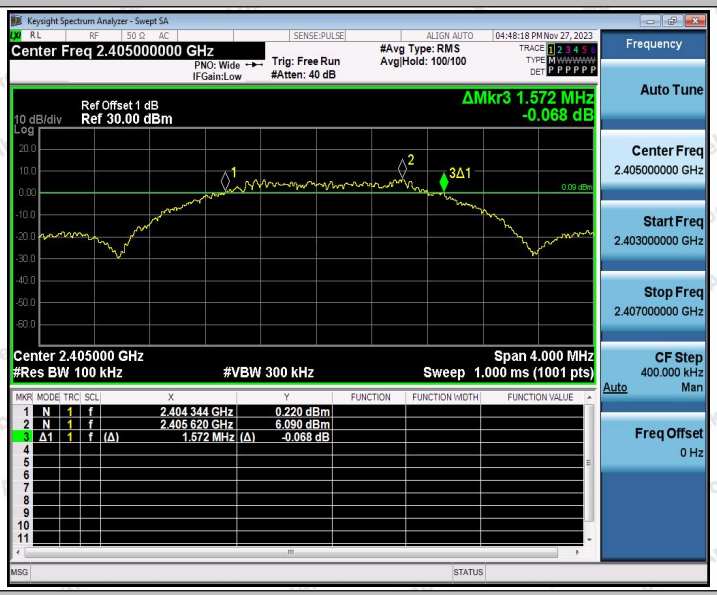
Appendix A: DTS Bandwidth

Test Result

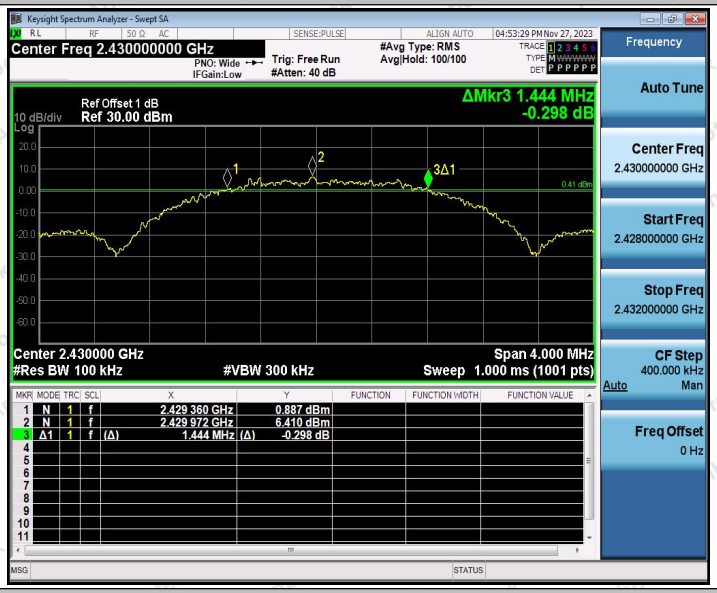
TestMode	Antenna	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
2.4G	Ant1	2405	1.572	2404.344	2405.916	0.5	PASS
		2430	1.444	2429.360	2430.804	0.5	PASS
		2470	1.632	2469.280	2470.912	0.5	PASS

Test Graphs

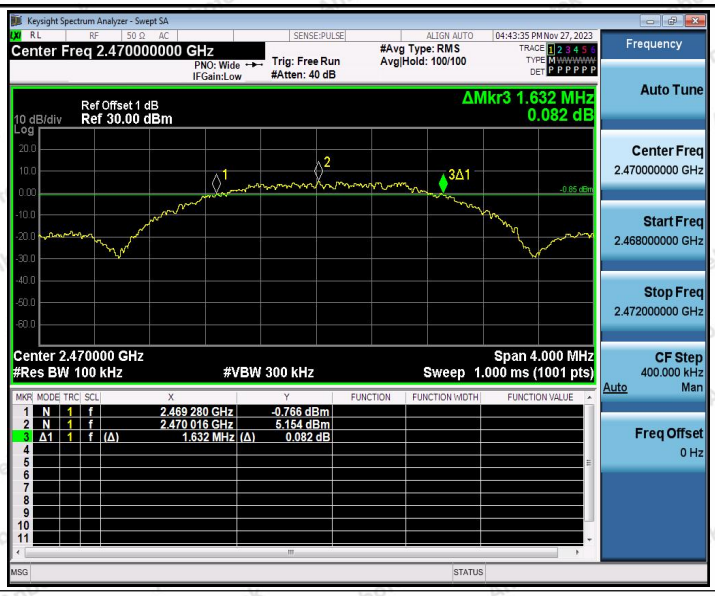
2.4G_Ant1_2405



2.4G_Ant1_2430



2.4G_Ant1_2470


Keysight Spectrum Analyzer - Swept SA
Center Freq 2.470000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 40 dB
#Avg Type: RMS
Avg|Hold: 100/100
04:43:35 PM Nov 27, 2023
Ref Offset 1 dB
10 dB/div
Ref 30.00 dBm
ΔMkr3 1.632 MHz
0.082 dB
-0.85 dBm
Center 2.470000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 4.000 MHz
Sweep 1.000 ms (1001 pts)
1 N 1 f 2.469 280 GHz -0.766 dBm
2 N 1 f 2.470 016 GHz 5.154 dBm
3 Δ1 1 f (Δ) 1.632 MHz (Δ) 0.082 dB
Frequency
Auto Tune
Center Freq
2.470000000 GHz
Start Freq
2.468000000 GHz
Stop Freq
2.472000000 GHz
CF Step
400.000 kHz
Auto Man
Freq Offset
0 Hz

Appendix B: Occupied Channel Bandwidth

Test Result

TestMode	Antenna	Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]
2.4G	Ant1	2405	2.3076	2403.9078	2406.2154
		2430	2.2914	2428.9111	2431.2025
		2470	2.2931	2468.9152	2471.2083

Test Graphs

2.4G_Ant1_2405

2.4G_Ant1_2430

2.4G_Ant1_2470

Keysight Spectrum Analyzer - Occupied BW
Center Freq 2.470000000 GHz
Center Freq: 2.470000000 GHz
Trig: Free Run
Avg|Hold: 100/100
#Atten: 40 dB
Radio Std: None
Radio Device: BTS
Frequency
Ref Offset 1 dB
10 dB/div
Ref 30.00 dBm
Log
Mkr1 2.470512 GHz
2.4723 dBm
Center 2.47 GHz
#Res BW 43 kHz
#VBW 130 kHz
Span 4 MHz
Sweep 2.067 ms
Occupied Bandwidth
2.2931 MHz
Total Power 15.6 dBm
Transmit Freq Error 61.793 kHz
OBW Power 99.00 %
x dB Bandwidth 4.000 MHz
x dB -26.00 dB
Center Freq
2.470000000 GHz
CF Step
400.000 kHz
Auto Man
Freq Offset
0 Hz

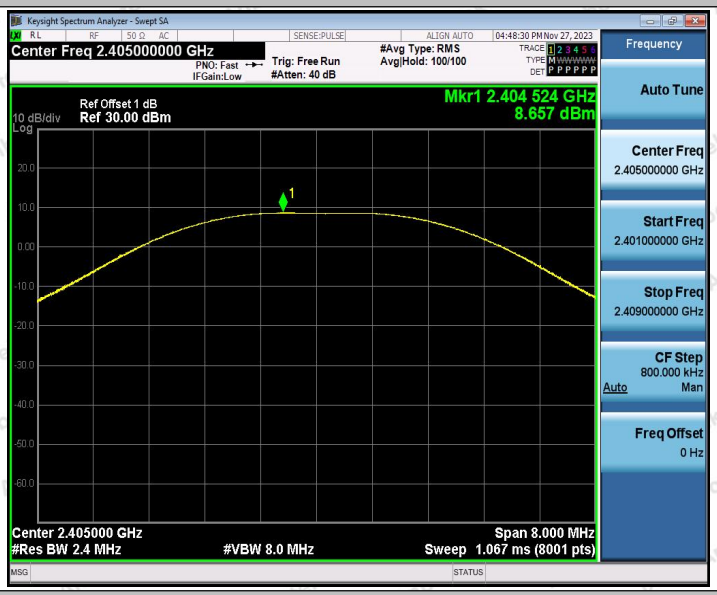
Appendix C: Maximum conducted output power

Test Result Peak

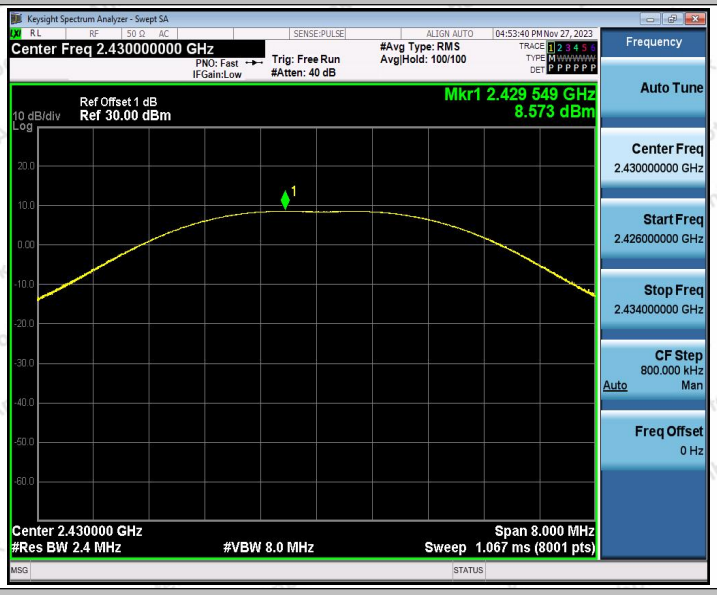
TestMode	Antenna	Frequency[MHz]	Conducted Peak Power[dBm]	Conducted Limit[dBm]	Verdict
2.4G	Ant1	2405	8.66	≤30	PASS
		2430	8.57	≤30	PASS
		2470	8.33	≤30	PASS

Test Graphs Peak

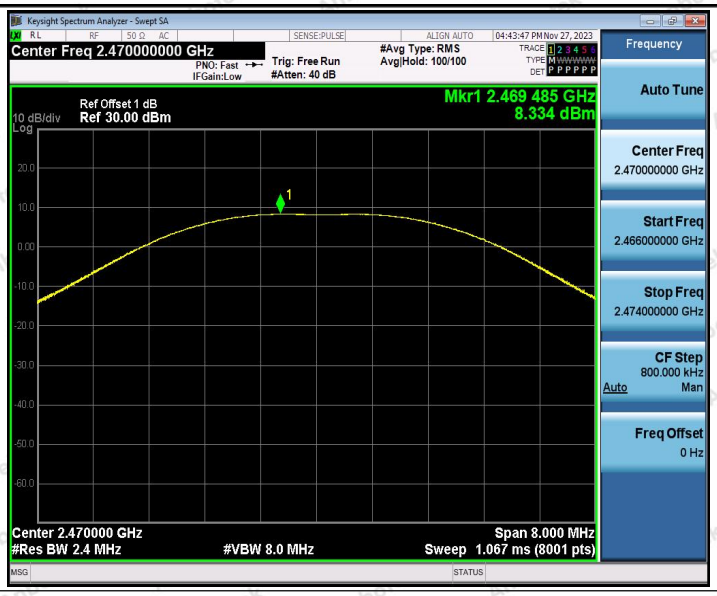
2.4G_Ant1_2405



2.4G_Ant1_2430



2.4G_Ant1_2470


Keysight Spectrum Analyzer - Swept SA
Center Freq 2.470000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
#Avg Type: RMS
Avg|Hold: 100/100
04:43:47 PM Nov 27, 2023
Ref Offset 1 dB
10 dB/div
Ref 30.00 dBm
Log
Mkr1 2.469 485 GHz
8.334 dBm
Center 2.470000 GHz
#Res BW 2.4 MHz
#VBW 8.0 MHz
Span 8.000 MHz
Sweep 1.067 ms (8001 pts)
Frequency
Auto Tune
Center Freq
2.470000000 GHz
Start Freq
2.466000000 GHz
Stop Freq
2.474000000 GHz
CF Step
800.000 kHz
Auto
Man
Freq Offset
0 Hz

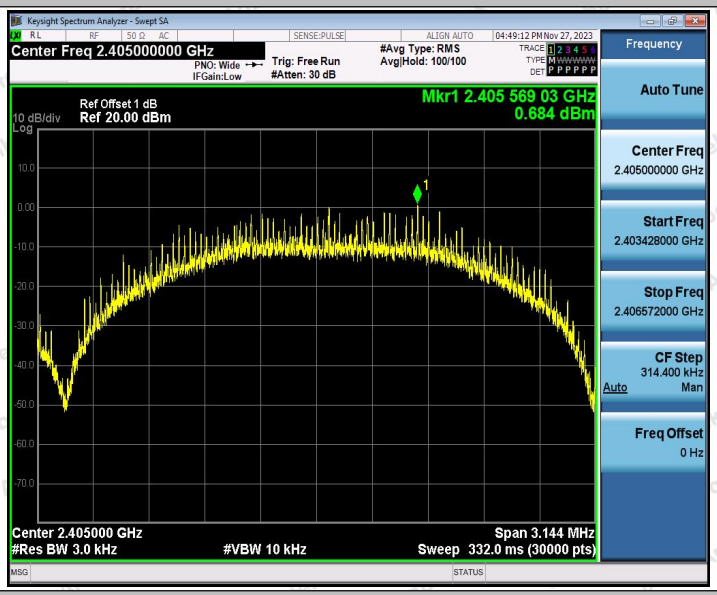
Appendix D: Maximum power spectral density

Test Result

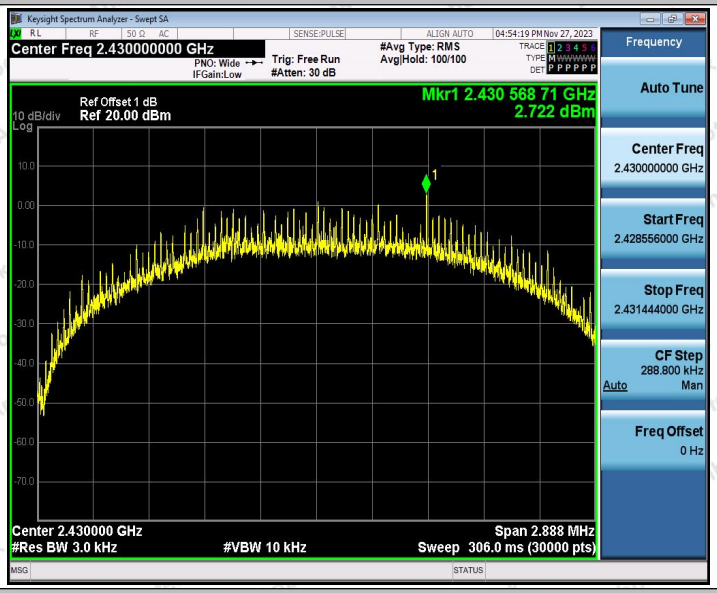
TestMode	Antenna	Frequency[MHz]	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
2.4G	Ant1	2405	0.68	≤8.00	PASS
		2430	2.72	≤8.00	PASS
		2470	0.56	≤8.00	PASS

Test Graphs

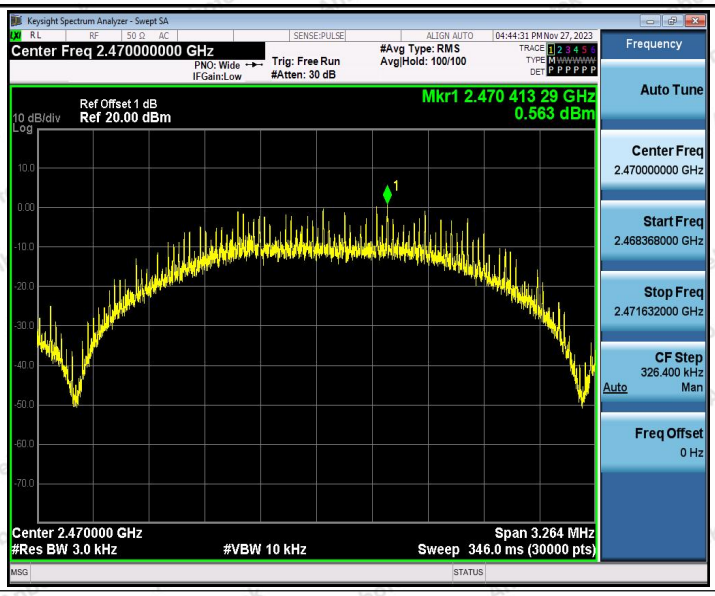
2.4G_Ant1_2405



2.4G_Ant1_2430



2.4G_Ant1_2470


Keysight Spectrum Analyzer - Swept SA
Center Freq 2.470000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
Avg|Hold: 100/100
04:44:31 PM Nov 27, 2023
Ref Offset 1 dB
10 dB/div
Ref 20.00 dBm
Log
Mkr1 2.470 413 29 GHz
0.563 dBm
Center 2.470000 GHz
#Res BW 3.0 kHz
#VBW 10 kHz
Span 3.264 MHz
Sweep 346.0 ms (30000 pts)
Frequency
Auto Tune
Center Freq
2.470000000 GHz
Start Freq
2.468368000 GHz
Stop Freq
2.471632000 GHz
CF Step
326.400 kHz
Auto
Man
Freq Offset
0 Hz

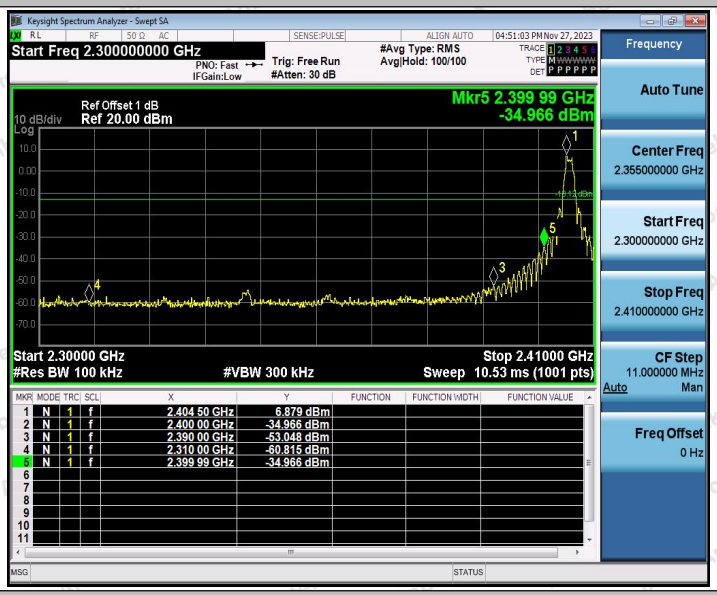
Appendix E: Band edge measurements

Test Result

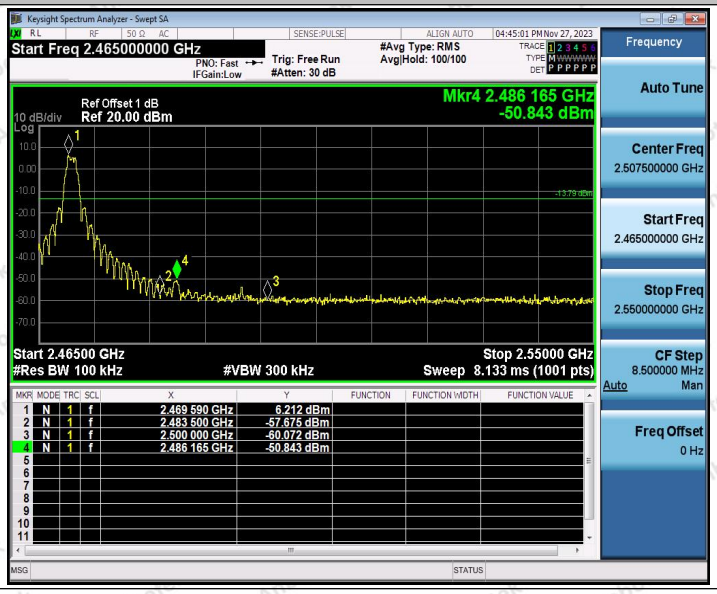
TestMode	Antenna	ChName	Frequency[MHz]	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
2.4G	Ant1	Low	2405	6.88	-34.97	≤-13.12	PASS
		High	2470	6.21	-50.84	≤-13.79	PASS

Test Graphs

2.4G_Ant1_Low_2405



2.4G_Ant1_High_2470



Appendix F: Conducted Spurious Emission

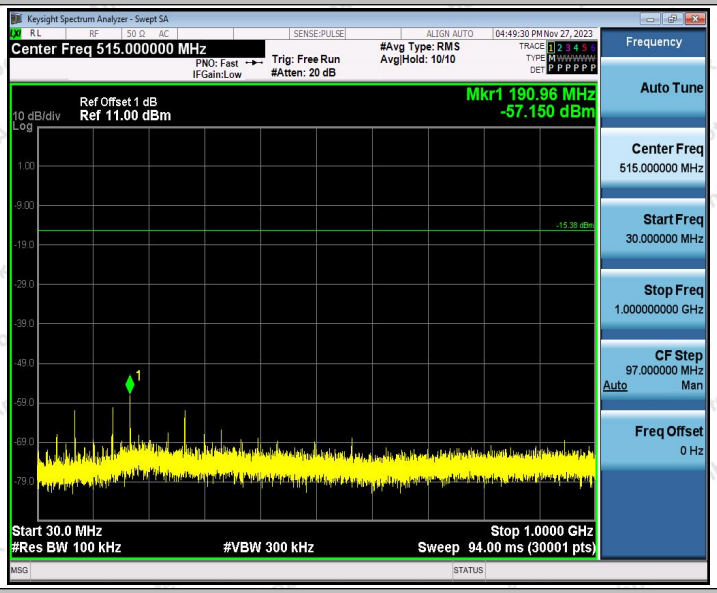
Test Result

TestMode	Antenna	Frequency[MHz]	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
2.4G	Ant1	2405	Reference	4.62	4.62	---	PASS
			30~1000	4.62	-57.15	≤-15.38	PASS
			1000~26500	4.62	-30.65	≤-15.38	PASS
		2430	Reference	4.32	4.32	---	PASS
			30~1000	4.32	-56.29	≤-15.68	PASS
			1000~26500	4.32	-28.88	≤-15.68	PASS
		2470	Reference	4.61	4.61	---	PASS
			30~1000	4.61	-60.72	≤-15.39	PASS
			1000~26500	4.61	-30.07	≤-15.39	PASS

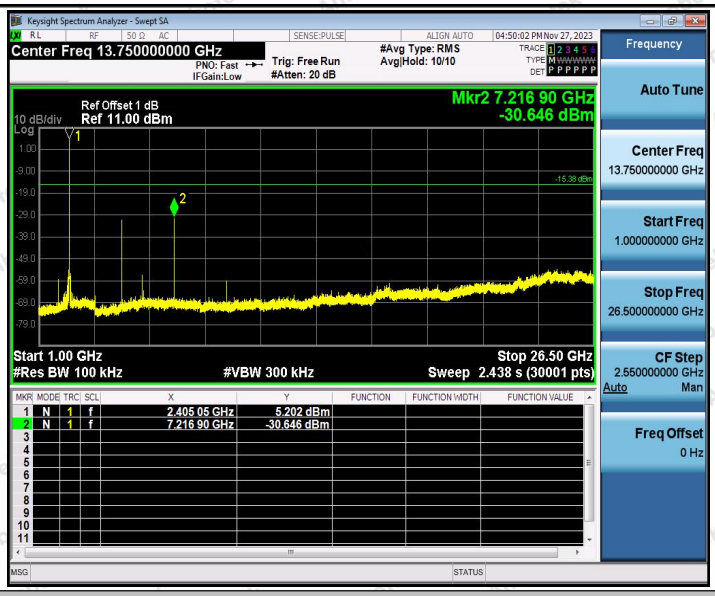
Test Graphs

2.4G_Ant1_2405_0~Reference

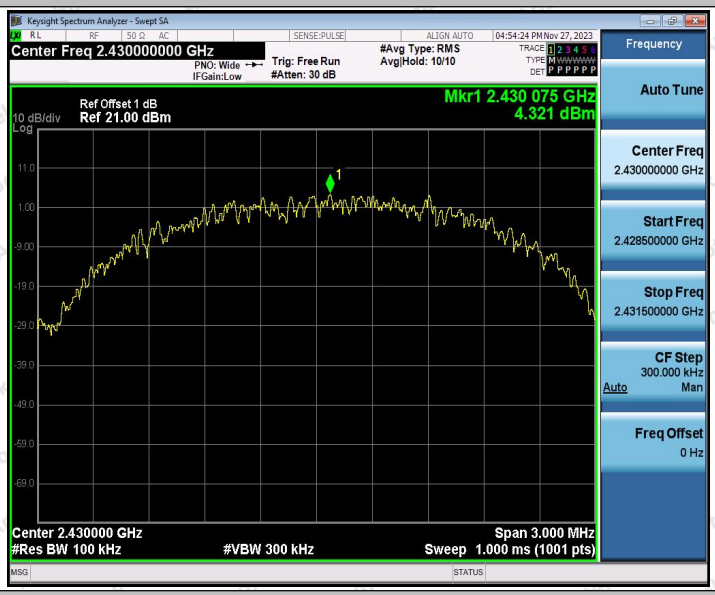
2.4G_Ant1_2405_30~1000



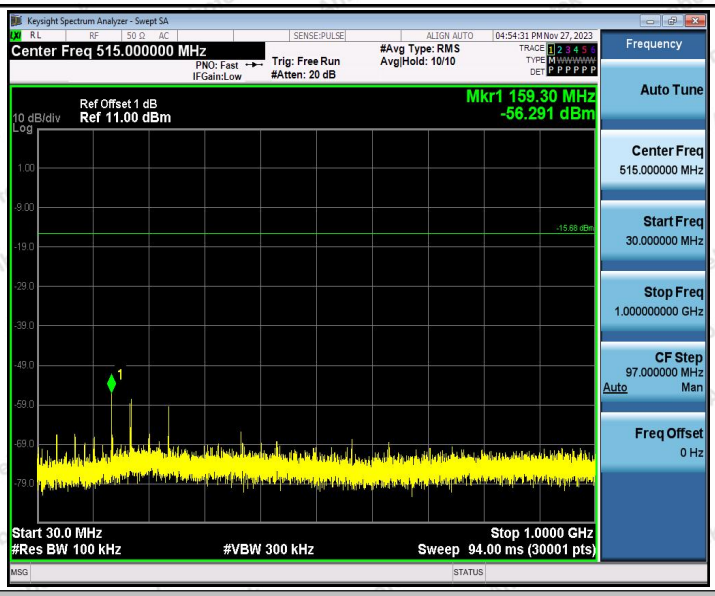
2.4G_Ant1_2405_1000~26500



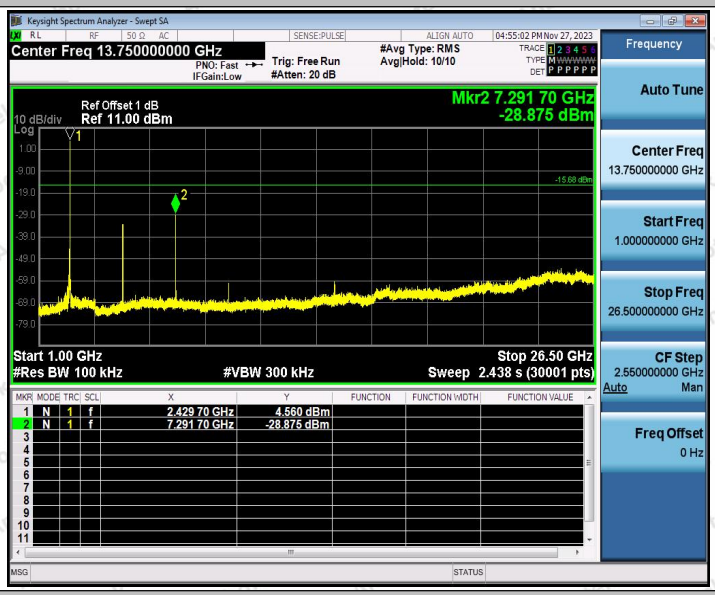
2.4G_Ant1_2430_0~Reference



2.4G_Ant1_2430_30~1000

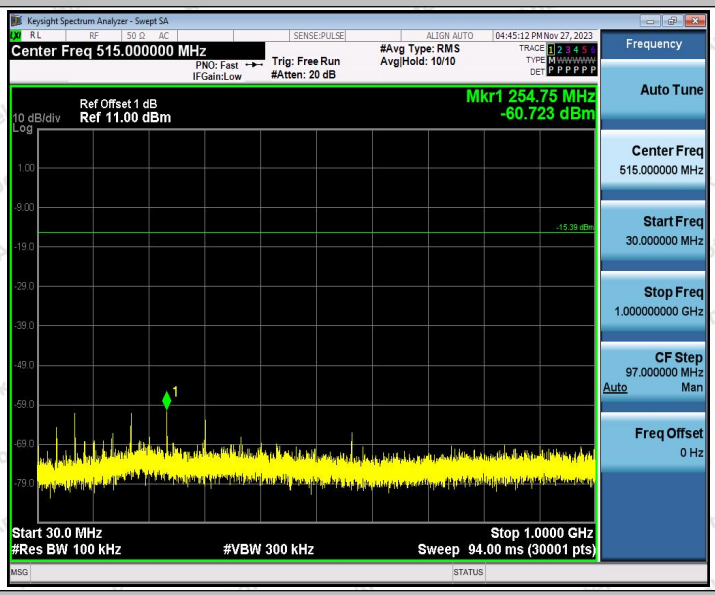


2.4G_Ant1_2430_1000~26500

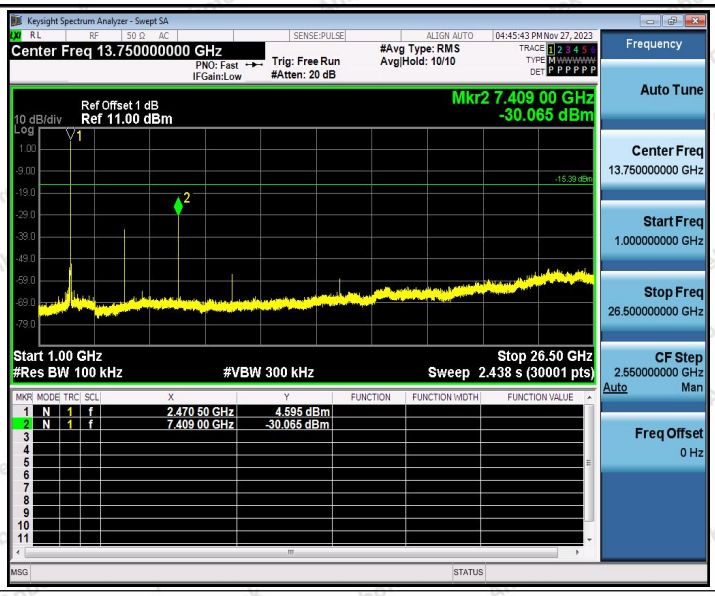


2.4G_Ant1_2470_0~Reference

2.4G_Ant1_2470_30~1000



2.4G_Ant1_2470_1000~26500


Keysight Spectrum Analyzer - Swept SA
Center Freq 13.750000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
#Avg Type: RMS
Avg|Hold: 10/10
04:45:43 PM Nov 27, 2023
Ref Offset 1 dB
10 dB/div
Ref 11.00 dBm
Mkr2 7.409 00 GHz
-30.065 dBm
Start 1.00 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 26.50 GHz
Sweep 2.438 s (30001 pts)
1 N 1 f 2.470 50 GHz 4.595 dBm
2 N 1 f 7.409 00 GHz -30.065 dBm
Frequency
Auto Tune
Center Freq
13.750000000 GHz
Start Freq
1.000000000 GHz
Stop Freq
26.500000000 GHz
CF Step
2.550000000 GHz
Auto Man
Freq Offset
0 Hz

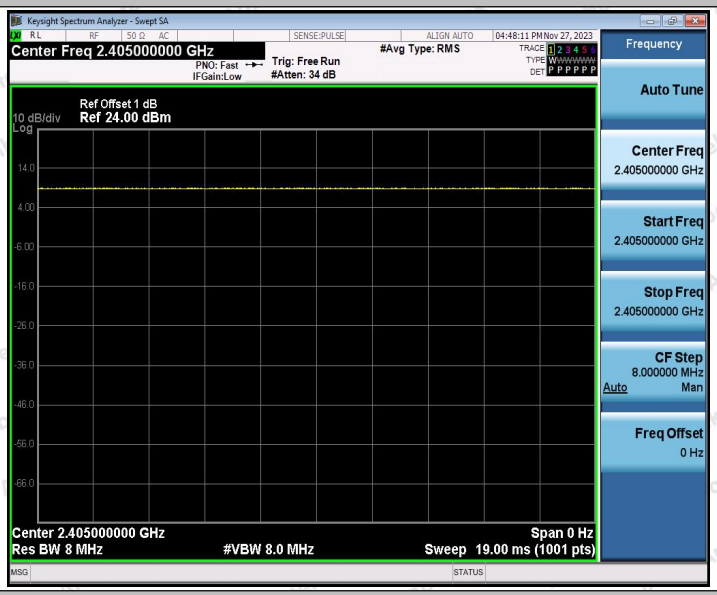
Appendix G: Duty Cycle

Test Result

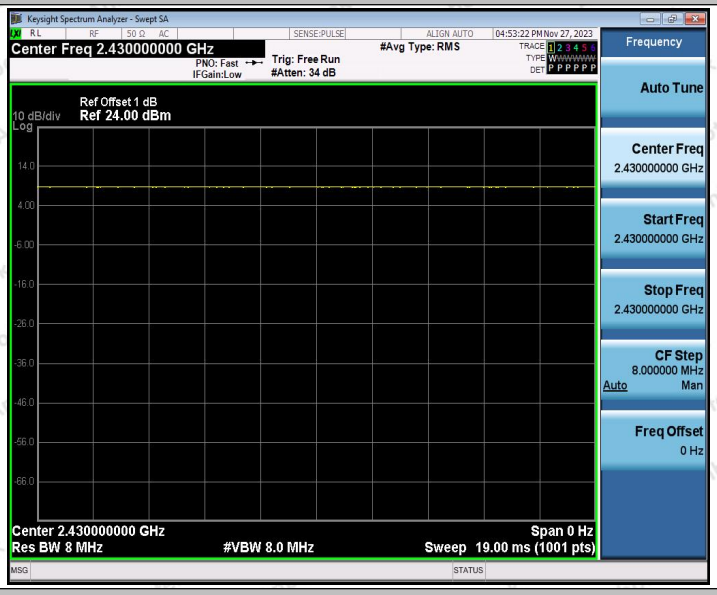
TestMode	Antenna	Frequency[MHz]	ON Time [ms]	Period [ms]	Duty Cycle [%]	Duty Cycle Factor[dB]
2.4G	Ant1	2405	19.00	19.00	100	0.00
		2430	19.00	19.00	100	0.00
		2470	19.00	19.00	100	0.00

Test Graphs

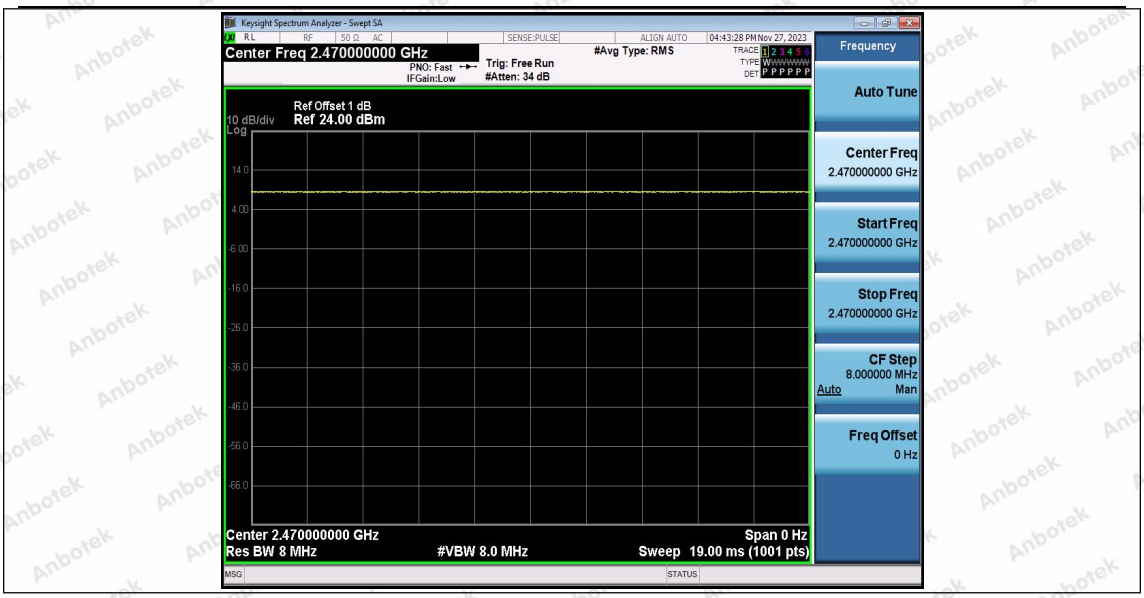
2.4G_Ant1_2405



2.4G_Ant1_2430



2.4G_Ant1_2470


Keysight Spectrum Analyzer - Swept SA
Center Freq 2.470000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 34 dB
#Avg Type: RMS
04:43:28 PM Nov 27, 2023
Ref Offset 1 dB
10 dB/div
Ref 24.00 dBm
Log
Center 2.470000000 GHz
Res BW 8 MHz
#VBW 8.0 MHz
Span 0 Hz
Sweep 19.00 ms (1001 pts)
Frequency
Auto Tune
Center Freq
2.470000000 GHz
Start Freq
2.470000000 GHz
Stop Freq
2.470000000 GHz
CF Step
8.000000 MHz
Auto
Man
Freq Offset
0 Hz

---End---